*Environmental Engineering and Management Journal*

*September 2017, Vol.16, No. 9, 2035-2043*
*http://omicron.ch.tuiasi.ro/EEMJ/*

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# MINIMUM ENTROPY GENERATION PATH FOR LIGHT-DRIVEN ENGINE WITH [A]⇌[B] SYSTEM AND $q \propto \Delta(T^{-1})$ HEAT TRANSFER LAW

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## Abstract

A light-driven dissipative engine, which must necessarily operates at a nonzero rate and far from equilibrium to be capable of providing power and work, is investigated in this paper. On the basis of the assumptions that the heat exchange between the working fluid and the environment obeys the linear phenomenological heat transfer law [$q \propto \Delta(T^{-1})$], the piston trajectories minimizing the entropy generation are determined. Furthermore, numerical examples are provided for the optimal paths of the engine with the linear phenomenological heat transfer law, and it can be observed that the obtained paths are quite different from those obtained with Newton's heat transfer law [$q \propto \Delta(T)$].

*Key words:* linear phenomenological heat transfer law, entropy generation minimization, irreversible light-driven engine, optimal control

*Received: January, 2013; Revised final: January, 2014; Accepted: January, 2014*

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